

WHAT IS CLAIMED IS:

1. A method for assembling a gas turbine engine combustor wherein the combustor includes a spectacle plate, a plurality of swirlers, and a plurality of deflector plates, said method comprising:

coupling an assembly fixture to at least one swirler;

coupling the assembly fixture to the spectacle plate such that the swirler is maintained in alignment with respect to the spectacle plate during assembly of the combustor; and

attaching the swirler to the spectacle plate.

2. A method in accordance with Claim 1 wherein coupling the assembly fixture to at least one swirler comprises attaching a clamp including at least a pair of arms to the swirler such that the swirler is secured between the pair of arms.

3. A method in accordance with Claim 1 wherein attaching the swirler to the spectacle plate comprises:

welding each respective swirler to the spectacle plate; and

removing the assembly fixture after each respective swirler is coupled in alignment to the spectacle plate.

4. A method in accordance with Claim 1 further comprising attaching the plurality of deflectors to the spectacle plate such that an opening extending through each respective deflector plate is substantially concentrically aligned with a respective swirler.

5. A method in accordance with Claim 4 wherein attaching the plurality of deflector plates comprises

positioning a first deflector plate against the spectacle plate;

positioning a second deflector plate against the spectacle plate and circumferentially adjacent the first deflector plate; and

coupling an alignment fixture between the first and second deflector plates to maintain the alignment of the deflector plates with respect to the spectacle plate.

6. A method in accordance with Claim 5 wherein attaching the plurality of deflectors to the spectacle plate comprises:

brazing each respective deflector plate to the spectacle plate; and

removing each respective alignment fixture after each pair of adjacent deflector plates has been attached to the spectacle plate.

7. A method in accordance with Claim 5 wherein coupling an alignment fixture between the first and second deflector plates further comprises coupling an alignment fixture having a coefficient of thermal expansion that is lower than a coefficient of thermal expansion of the deflector plates, between adjacent deflector plates.

8. A combustor for a gas turbine engine, said combustor comprising a spectacle plate, and a plurality of swirlers attached to said spectacle plate, assembling said combustor comprising:

coupling an assembly fixture to at least one said swirler;

removably coupling each respective assembly fixture to the spectacle plate to maintain an alignment of each said respective swirler with respect to said spectacle plate; and

uncoupling each respective assembly from said spectacle plate after each said swirler is attached to said spectacle plate.

9. A combustor in accordance with Claim 8 further comprising a plurality of deflector plates comprising an opening extending therethrough,

assembling said combustor further comprising attached said plurality of deflector plates to said spectacle plate such that each said deflector plate opening substantially concentrically aligned with each respective said swirler.

10. A combustor in accordance with Claim 9 wherein each said swirler is welded to said spectacle plate prior to uncoupling each respective assembly fixture.

11. A combustor in accordance with Claim 9 wherein assembling said combustor further comprises:

positioning a first of said deflector plates against said spectacle plate;

positioning a second of said deflector plates against said spectacle plate and circumferentially adjacent said first deflector plate; and

removably coupling an alignment fixture between said first and second deflector plates to maintain a position of said first and second deflector plates with respect to said spectacle plate.

12. A combustor in accordance with Claim 11 wherein each said deflector plate brazed to said spectacle plate, assembling said combustor further comprising removing each respective alignment fixture after said first and second deflector plates are secured to said spectacle plate.

13. An assembly fixture for a gas turbine engine combustor including a spectacle plate, said assembly fixture removably coupled to the spectacle plate during assembly of the combustor for aligning at least one of a plurality of swirlers and a plurality of deflector plates for attachment to the spectacle plate.

14. An assembly fixture in accordance with Claim 13 comprising a plurality of arms and an attachment mechanism, said fixture arms configured to receive a swirler therebetween, said attachment mechanism configured to removably couple said fixture to the spectacle plate such that said swirler aligned with respect to the spectacle plate.

15. An assembly fixture in accordance with Claim 14 configured to uncouple from the spectacle plate after the swirler is secured in position to the spectacle plate.

16. An assembly fixture in accordance with Claim 13 configured to align each respective deflector plate with respect to the spectacle plate such that each swirler attached to the spectacle is substantially concentrically aligned with respect to a center opening extending through each deflector plate.

17. An assembly fixture in accordance with Claim 16 wherein each fixture comprises a clip configured to extend between a pair of circumferentially positioned deflector plates for aligning each deflector plate with respect to the spectacle plate.

18. An assembly fixture in accordance with Claim 17 wherein each said assembly fixture is configured to uncouple from the spectacle plate after each respective pair of deflector plates is secured in position to the spectacle plate.

19. An assembly fixture in accordance with Claim 17 wherein each said assembly fixture is configured to remain coupled to the spectacle plate while each respective pair of deflector plates is brazed to the spectacle plate.